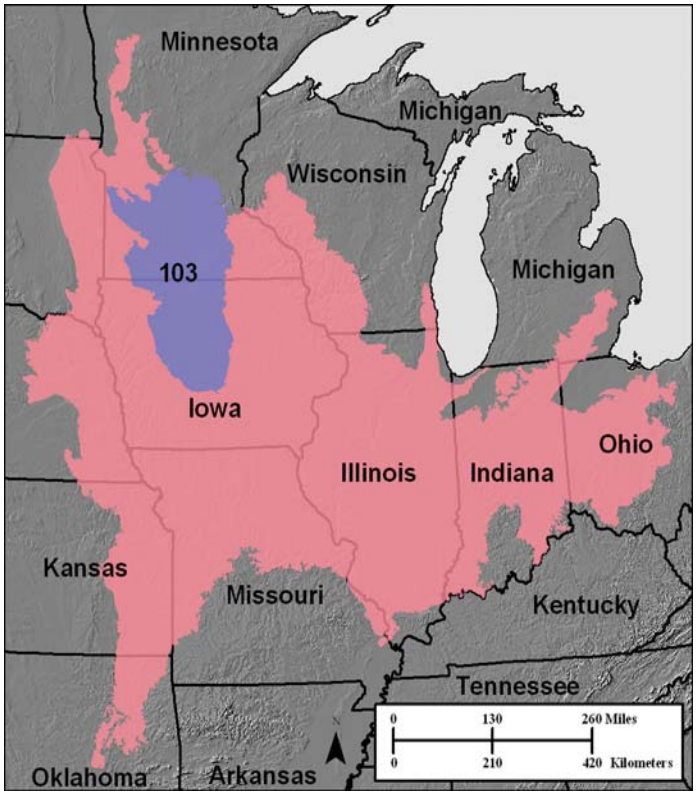

Location of MLRA 103 in Land Resource Region M.

103—Central Iowa and Minnesota Till Prairies

This area is in Minnesota (56 percent) and Iowa (44 percent). It makes up about 27,640 square miles (71,630 square kilometers). It includes the cities or towns of Mankato, Marshall, Hutchinson, Minneapolis, and Willmar, Minnesota, and Des Moines, Ames, Carroll, and Fort Dodge, Iowa. The towns of Worthington and Fairmont and the city of Albert Lea, Minnesota, are connected by Interstate 90, which crosses the center of this area. Interstate 80 passes through Ankeny and Des Moines, and Interstate 35 extends from north of Des Moines to the cities of Minneapolis and St. Paul, Minnesota. Numerous State and county parks and public access areas are throughout the MLRA.

Physiography
This area is in the Western Lake Section of the Central Lowland Province of the Interior Plains. The area is called the “Des Moines Lobe” of the Wisconsin-age ice sheet. It is mostly on a young, nearly level to gently rolling glaciated till plain with moraines and glacial lake plains in some areas. The eastern part of the area has some higher hills (moraines). Natural lakes, marshes, and potholes occur throughout the area. Elevation ranges from 985 to 1,315 feet (300 to 400 meters). Relief is mainly less than 10 feet to 20 feet (3 to 6 meters), but some of the major valleys are 165 feet (50 meters) or more below the adjoining uplands.

The extent of the major Hydrologic Unit Areas (identified by four-digit numbers) that make up this MLRA is as follows: Minnesota (0702), 35 percent; Des Moines (0710), 32 percent; Upper Mississippi-Iowa-Skunk-Wapsipinicon (0708), 14 percent; Mississippi Headwaters (0701), 11 percent; Upper Mississippi-Black-Root (0704), 4 percent; and Missouri-Little Sioux (1023), 4 percent. The major rivers that drain the MLRA include the Blue Earth, Boone, Cottonwood, Des Moines, Lizard, Minnesota, and Raccoon Rivers. The Minnesota, Crow, and Cannon Rivers are National Wild and Scenic Rivers in this MLRA.

Geology
This area is covered with glacial till, outwash, and glacial lake deposits. Recent alluvium consisting of clay, silt, sand, and gravel fill the bottoms of most of the major river valleys. Paleozoic bedrock sediments, primarily shale and limestone, underlie the glacial deposits in most of the area. Some Precambrian Sioux Quartzite is exposed on the western edge of the area, in southwestern Minnesota.

Climate
The average annual precipitation in most of this area is 23 to 35 inches (585 to 890 millimeters), increasing from northwest to southeast. Most of the rainfall occurs as high-intensity, convective thunderstorms during the summer. Two-thirds or more of the precipitation falls during the freeze-free period. Snowfall is common in winter. The average annual temperature ranges from 43 to 50 degrees F (6 to 10 degrees C). The freeze-free period averages about 175 days and ranges from 155 to 200 days.

Water
Following are the estimated withdrawals of freshwater by use in this MLRA:
Public supply—surface water, 9.5%; ground water, 8.9%
Livestock—surface water, 1.1%; ground water, 3.0%
Irrigation—surface water, 0.6%; ground water, 2.1%
Other—surface water, 64.6%; ground water, 10.1%

The total withdrawals average 1,485 million gallons per day (5,620 million liters per day). About 24 percent is from ground water sources, and 76 percent is from surface water sources. The moderate precipitation is adequate for crops, but in years when rainfall is below normal, yields can be reduced. Lakes, ponds, and a few artificial reservoirs provide water and opportunities for recreation. The surface water is abundant, but its quality may be degraded by the nonpoint sources of sediment, nutrients, and pesticides in runoff from agricultural land.

Ground water supplies are adequate for the domestic, livestock, municipal, and industrial needs in this area. A number of unconsolidated and bedrock aquifers occur in the area. Most of the ground water used in the area is pumped from the surficial aquifer (buried channels, glacial drift, and alluvium) or the Ordovician and Cambrian sandstone and dolomite in the Jordan, or Prairie du Chien-Jordan, aquifer. The water from both of the aquifers generally meets Federal and State drinking water standards. It is hard or very hard. The level of total dissolved solids in the water from the surficial aquifer is about 500 parts per million (milligrams per liter).

Soils

The dominant soil orders in this MLRA are Mollisols and, to a lesser extent, Alfisols and Inceptisols. The soils in the area dominantly have a mesic soil temperature regime, an aquic or udic soil moisture regime, and mixed mineralogy. They generally are very deep, well drained to very poorly drained, and loamy. Hapludolls formed in loamy till on till plains and moraines (Amiret, Clarion, Nicollet, and Ves series) and in outwash deposits on outwash plains, terraces, and kames (Estherville and Hawick series). Argiudolls (Le Sueur series) and Argiaquolls (Cordova series) formed in loamy till on till plains and moraines. Endoaquolls (Canisteo, Glencoe, and Webster series) and Calciaquolls (Harps series) formed in loamy till and/or local alluvium on till plains and in swales and depressions. Endoaquolls also formed in alluvium on flood plains (Coland series). Hapludalfs (Hayden and Lester series) and Eutrudepts (Storden series) formed in loamy till on moraines.

Biological Resources

This area supports natural prairie vegetation characterized by little bluestem, Indiangrass, and switchgrass. Little bluestem, Indiangrass, and needlegrass grow on sandy, droughty soils. Little bluestem, sideoats grama, blue grama, and scattered bur oak, juniper, and sumac grow on very shallow soils.

Some of the major wildlife species in this area are white-tailed deer, fox, beaver, muskrat, rabbit, squirrel, mink, Canada goose, pheasant, and gray partridge. The most common species of fish in the area are walleye, northern pike, largemouth bass, bluegill, crappie, yellow perch, and sunfish.

Land Use

Following are the various kinds of land use in this MLRA:

Cropland—private, 80%
Grassland—private, 5%
Forest—private, 3%
Urban development—private, 6%
Water—private, 2%
Other—private, 4%

Nearly all of this area is in farms, and about four-fifths is cropland. The proportion of cropland is highest in the southern part of the area. Corn, soybeans, and other feed grains are the major crops. Some of the cropland is used for hay. Dairy farming is a more common enterprise in the northern part of the MLRA than in the southern part. Forested areas occur as narrow bands on steep slopes bordering stream valleys and as wet areas on bottom land. Less than one-tenth of the area is used for urban development. Many natural lakes occur in this area, and numerous bogs, swales, and circular depressions indicate sites of previously ponded water. Much of the area is currently drained by tile. Extensive drainage ditches provide outlets for the tile drains. Many areas in this MLRA are used for outdoor recreation.

The major resource concerns are water erosion, depletion of organic matter in the soils, excess surface and subsurface water, and poor water quality. Conservation practices on cropland generally include systems of crop residue management (especially no-till, strip-till, and mulch-till systems), cover crops, surface and subsurface drainage systems, nutrient and pest management, grassed waterways, buffer strips, and development of wildlife habitat.